

Melvin Roberts W3MR

Comments to RM-11306

I do not support RM-11306 in its current form.

I agree with the premise of the ARRL that the Amateur Radio regulations need to be amended to allow new forms of communications protocols to be used by amateurs. To allow the maximum flexibility for experimentation, the current “regulation by mode” needs to be *modified* or replaced; however, with the diverse nature of Amateur Radio operations, the mixing of various mode schemes, duty cycles, and resistance to interference, a radical change to “regulation by bandwidth” as suggested in this RM may not be in the best interest of the Amateur Radio Service.

Normally the services that the FCC regulates are based on a raster or channelization plan that is followed by all parties, allowing a well defined frequency separation. In the Amateur Radio Service, with the exception of repeater operations, there is no channelization plan. With amateur operations allowed to operate across the sub-bands allowed by control operator license, any semblance of a well defined frequency separation between amateur radio operations is impossible.

HF bands:

Bandwidth

RM-11306 indicates that the emission bandwidth defined for “regulation by bandwidth” is to be based on the necessary bandwidth rather than occupied bandwidth. I doubt if many of the current amateurs understand the difference between the two definitions. From the 2002 ARRL Handbook, page 12.1, “The FCC has defined the necessary bandwidth as: For a given class of emission, the minimum value of the occupied bandwidth sufficient to ensure the transmission of information at the rate and with the quality required for the system employed, under specified conditions.” Under what conditions is the necessary bandwidth going to be calculated? How is the average amateur going to determine the necessary bandwidth?

RM-11306 recommends that a 3.5 kHz bandwidth be used as the SSB and digital “standard” bandwidth on the HF bands, except for the 60 meter band where 2.8 kHz is used. I fail to see where the ARRL has made a compelling argument to increase the bandwidth requirement to 3.5 kHz; in fact, they contradict that request in their own filing with the note in section II.10, page 8, where they mention the potential to test a new mode with a symbol rate of 5600 baud and a bandwidth of 2.4 kHz. Since the SSB transmissions that are currently used in the Amateur Radio Service conform to the 2.8 kHz occupied bandwidth, and the Alaska 60 meter band requirement of 2.8 kHz, I recommend that the 2.8 kHz bandwidth be adopted as the “standard” voice

and data bandwidth in the HF bands up to 29 MHz. The 2.8 kHz bandwidth limitation, rather than 3.5 kHz, will encourage efficient modulation techniques.

If there is a compelling need to move to a 3.5 kHz bandwidth, I suggest that small segments (11 kHz to allow 3 simultaneous “channels”) be made in each of the HF bands to allow experimentation using new modulation techniques.

Station control

One glaring omission in RM-11306 is the lack of control over automatic and semi-automatic operations. Transmitters using the automatic and semi-automatic modes are generally used for e-mail and other non-time critical data exchanges. Sometimes these modes are used for emergency communications, but they can also be carried on the Internet, cell phone, INMARSAT, or other satellite based delivery systems as well as Amateur Radio. If there is a communications emergency, the FCC can declare an emergency, allow communications on other than Amateur Radio frequencies, or declare certain frequency bands only for emergency use. In that case, the FCC could allow additional modes and bandwidths to be used. During normal times, allowing automatic and semi-automatic digital operations in the same sub-band as analog voice will create interference problems. Suggest that a narrow sub-band (11 kHz) be set up in each of the HF bands to accommodate automatic and semi-automatic operations. This sub-band can be the same one as used as for the experimentation of various new modes as discussed above. If these modes have some kind of “listen before transmit” coding, then no interference between the automatic and semi-automatic digital stations will occur.

In my experience, currently none of the automatic or semi-automatic stations have “listen before transmit” coding that operates efficiently.

Voluntary Band Plans

The ARRL mentions the use of voluntary band plans to keep analog (and presumably digital) voice out of the frequency range 14.1-14.15 MHz (footnote 12), while the bandwidth limitations would allow analog voice. In my experience, voluntary band plans do not work during contest periods. Is the purpose of the allowing 3.5 kHz in the 14.1-14.15 MHz sub-band to find a location for PACTOR-III or other digital systems to have an exclusive sub-band?

Published Digital Codes

Section V.20, page 18, indicates that digital codes must be published, and not specified by FCC ruling. Suggest that the FCC require any digital code/protocol be made available to the FCC and any amateur that requests the code. If any code is allowed to be published only in Chinese, is it reasonable that American amateur operators will be able to decode the

identifying characteristics of an interfering station? How will the FCC be able to identify the interfering station?

Digital Modes ONLY?

From the proposed ARRL band plan and comments regarding voluntary band plans, it appears that the following sub-bands are to be used for digital communications ONLY:

3.620-3.750 MHz

7.100-7.150 MHz

14.100-14.150 MHz

21.150-21.200 MHz

28.120-28.3 MHz

Does the FCC actually believe that if it is allowed by regulation that analog voice operators will not use the expanded portions of the bands above, especially when the rest of the world can already operate there?

Does the use of 3.5 kHz in the former Novice and Tech code band on 40 Meters (7.100-7.150 MHz), 80 Meters (3.675-3.725), 15 Meters (21.100-21.120 MHz), and 10 Meters (28.1-28.3 MHz) mean that those segments are going to be eliminated for the Novice/Tech plus CW operators? Does the ARRL expect that newly licensed or inexperienced operators will be able to cope with the interference that digital stations will cause (assuming that there is no additional analog voice per the voluntary band plan)?

30 Meters

RM-11306 indicates that there should be a 3.5 kHz band between 10.135 and 10.150 MHz. This very narrow 30 Meter band (50 kHz) should be kept for lower bandwidth communications. Suggest that 500 kHz be the maximum allowed on 30 Meters.

VHF segment:

In the VHF/UHF (6 meters and up) bands, allowing a 100 kHz (wideband) digital transmission across the well defined repeater input and output frequencies may create unacceptable interference. Currently, only repeater operations are required to be coordinated by recognized repeater coordination groups. RM-11306, in its current form, apparently makes no requirement on non-repeater operators to coordinate with the recognized coordination groups, potentially creating interference to repeater operations, especially to the input of the repeater.

Wideband operations across the recognized weak signal and space segments of the VHF/UHF bands can cause interference to these operations. Space segment downlinks, which may not be audible by the wideband operator until the spacecraft comes over the local horizon, could be very susceptible to the wideband operations and unattended stations.

In the VHF/UHF bands, suggest that a separate area be determined for wideband operations, and that the wideband operations be avoided across the recognized space segment downlink bands, other weak signal (EME, terrestrial contacts) spectrums, and. repeater segments. Once a recognized need for additional spectrum is required for 100 kHz bandwidth operations, additional spectrum can be considered.

Specifically for 100 kHz operations:

6 Meters: 50.6-51.0 MHz

2 Meters: 145.5-145.8 MHz

1.25 Meters: 223.52-223.85 MHz

70 cm: 432.4-435 MHz

33 cm and above: Entire band

In conclusion, I believe that RM-11306 is flawed and should not be adopted in the current form.